

**Notice of Allowability**

Application No.

10/016,220

Examiner

Jalatee Worjloh

Applicant(s)

ANDO ET AL.

Art Unit

3621

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/02/2006.
2. ☒ The allowed claim(s) is/are 4-11, 16-24 and 41-57.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

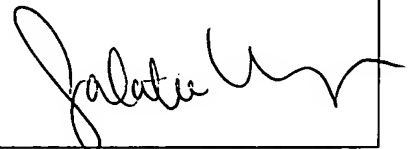
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_



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1. Claims 4-11, 16-24, and 41-57 are allowed.

*Reasons for Allowance*

2. The following is an examiner's statement of reasons for allowance:

The closest prior art of record is US Patent No. 6744891 to Allen.

Allen discloses a customer being provided with an option to select one of a number of different quality levels in which to receive a higher quality version of requested data. After the customer makes a royalty fee payment, the higher quality version is provided at the quality level commensurate with the amount of royalty fee paid. Allen taken either individual or in combination with other prior art of record fails to teach or suggest wherein the quality improving means combines the high-order bits of the original data, which is the data; the part of low-order bits of the original data, which is the improvement information; and the other part of lower-order bits of the original data, which is the another improvement information, to output high-quality data having higher quality than the data as recited in independent claims 4 and 16, wherein the data is first sub-sampled data obtained by sub-sampling the original data at a first phase and the improvement information is second sub-sampled data obtained by sub-sampling the original data at a second phase; and wherein the quality improving means combines the first sub-sampled data, which is the data; the second sub-sampled data, which is the improvement information; and third sub-sampled data obtained by sub-sampling the original data at a third phase, which is the another improvement information, to output high-quality data having higher quality than the data as recited in independent claims 6 and 18; extracting means for extracting degraded data around the target data in the high-quality data; class-classification means for performing class-classification according to data extracted by the extracting means and for outputting a class; and

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prediction means for predicting the target data from the extracted data according to the class output from the class-classification means, wherein the data is degraded data obtained by degrading the original data, wherein the quality improving means can restore the original data from the degraded data according to at least both the improvement information and the another improvement information as recited in independent claims 9 and 21; improvement-information-request signal receiving means for receiving an improvement information request signal indicating that another information processing apparatus requests the improvement information, wherein the improvement-information sending means sends the improvement information to the another information processing apparatus according to an improvement-information request signal received by the improvement-information-request-signal receiving means as recited in independent claim 24; wherein the quality improving device combines the high-order bits of the original data, which is the data; the part of low-order bits of the original data, which is the improvement information; and the other part of lower-order bits of the original data, which is the another improvement information, to output high-quality data having higher quality than the data as recited in independent claims 41 and 49; wherein the data is first sub-sampled data obtained by sub-sampling the original data at a first phase and the improvement information is second sub-sampled obtained by sub-sampling the original data at a second phase and wherein the quality improving device combines the first sub-sampled data, which is the data; the second sub-sampled data, which is the improvement information; and third sub-sampled data obtained by sub-sampling the original data at a third phase, which is the another improvement information, to output high-quality data having higher quality than the data as recited in independent claims 43 and 51; an extracting device configured to extract degraded data around the target data in the

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high-quality data, a class-classification device configured to perform class-classification according to data extracted by the extracting device and for outputting a class and a prediction device configured to predict the target data from the extracted data according to the class output from the class-classification device wherein the data is degraded data obtained by degrading the original data, wherein the data, wherein the quality improving device can restore the original data from the degraded data according to at least both the improvement information and the another improvement information as recited in independent claims 46 and 54 and an improvement-information-request-signal receiving device configured to receive an improvement-information request signal indicating that another information processing apparatus requests the improvement information, wherein the improvement-information sending device is configured to send the improvement information to the another information processing apparatus according to an improvement-information request signal received by the improvement-information-request-signal receiving device as recited in independent claim 57.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- “Enhancing Degraded Document Images via Bitmap Clustering and Averaging” to Hobby et al. discusses a method to enhance degraded document images for better display quality and recognition accuracy.
- “Degraded Character Image Restoration” to Hobby et al. discusses an algorithm for the restoration of degraded images of machine-printed characters.
- European Patent No. 0352937 to Grimmes discloses a method and apparatus for performing data error detection and correction.

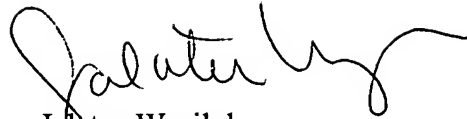
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jalatee Worjloh whose telephone number is (571) 272-6714. The examiner can normally be reached on Mondays-Thursdays 8:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Andrew Fischer can be reached on (571) 272-6779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for Regular/After Final Actions and 571-273-6714 for Non-Official/Draft.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read 'Jalate Worjloh', with a stylized, flowing script.

Jalate Worjloh  
Patent Examiner  
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August 10, 2006